IN THE CLAIMS

1. (Previously Presented) A semiconductor structure for storing charges, comprising:

a metallization layer;

a single conductive layer directly contacting the metallization layer, the single conductive layer having a second compound that includes a first substance and a second substance, wherein the single conductive layer also includes a trace amount of the first substance, wherein the second compound in an as-deposited state includes a substantial amount of the second substance so as to inhibit undesired diffusion of at least one substance of the second compound from the insulator layer;

a single insulator layer formed directly on the single conductive layer, the single insulator layer having a first compound; and

a second conductive layer formed directly on the single insulator layer, wherein the second conductive layer includes a conductive portion formed below a surface of the single conductive layer.

2. (Original) The semiconductor structure of claim 1, wherein the first compound includes ditantalum pentaoxide.

3. (Original) The semiconductor structure of claim 1, wherein the first substance includes ruthenium atoms.

4. (Original) The semiconductor structure of claim 1, wherein the second substance includes oxygen atoms.

5. (Original) The semiconductor structure of claim 1, wherein the second compound includes RuO_x, wherein x is indicative of a desired number of atoms.

6. (Previously Presented) A semiconductor structure for storing charges, comprising:

a metallization layer;

a single conductive layer directly contacting the metallization layer, the single conductive layer having a compound formed from a first substance and a second substance, wherein the single conductive layer also includes a trace amount of the first substance;

a single insulator layer formed directly on the single conductive layer, wherein the morphology of the semiconductor structure remains stable when the trace amount of the first substance is oxidized during crystallization of the single insulator layer; and

a second conductive layer formed directly on the single insulator layer, wherein the second conductive layer includes a first conductive portion and a second conductive portion uniformly formed with the first conductive portion, wherein one of the first and second conductive portions is surrounded by the first conductive layer.

7. (Original) The semiconductor structure of claim 6, wherein the compound includes RuO_x, wherein x is indicative of a desired number of atoms.

8. (Original) The semiconductor structure of claim 6, wherein the first substance includes ruthenium.

9. (Original) The semiconductor structure of claim 6, wherein the second substance includes oxygen.

10. (Original) The semiconductor structure of claim 6, wherein the insulator layer includes ditantalum pentaoxide.

11. (Previously Presented) A semiconductor structure for storing charges, comprising:

a metallization layer;

a single conductive layer directly contacting the metallization layer, the single conductive layer having a compound and a substance;

a single insulator layer formed directly on the single conductive layer, the single insulator layer having a permittivity value greater than about 25, wherein the compound remains stable

when the single insulator layer is crystallized at a high temperature so as to decrease a charge leakage of the insulator layer; and

a second conductive layer formed directly on the single insulator layer, wherein the second conductive layer includes a first conductive portion and a second conductive portion uniformly formed with the first conductive portion, wherein one of the first and second conductive portions is surrounded by the first conductive layer.

12. (Original) The semiconductor structure of claim 11, wherein the insulator layer includes ditantalum pentaoxide.

13. (Original) The semiconductor structure of claim 11, wherein the compound includes RuO_x, wherein the x is indicative of a desired number of atoms.

14. (Original) The semiconductor structure of claim 11, wherein the high temperature includes greater than about 750 degrees Celsius to less than about 801 degrees Celsius.

15. (Original) The semiconductor structure of claim 11, wherein the conductive layer passivates the insulator layer from undesired oxidation.

16. (Previously Presented) A semiconductor structure for storing charges, comprising:

a metallization layer;

a single conductive layer directly contacting the metallization layer, the single conductive layer and adapted to mitigate diffusion, wherein the single conductive layer includes a compound and a substance;

a single insulator layer formed directly on the single conductive layer, the single insulator layer having a permittivity value greater than about 25; and

a second conductive layer formed directly on the single insulator layer, wherein the second conductive layer includes a conductive portion formed below a surface of the single conductive layer.

17. (Original) The semiconductor structure of claim 16, wherein the insulator layer includes ditantalum pentaoxide.

18. (Original) The semiconductor structure of claim 16, wherein the conductive layer includes RuO_x, wherein the x indicates a desired number of atoms.

19. (Original) The semiconductor structure of claim 16, wherein the desired lattice plane includes substantially a (001) plane.

20. (Original) The semiconductor structure of claim 16, wherein the desired lattice plane is described by three axes, wherein the desired lattice plane is parallel to two of the three axes and intersects one of the three axes.

21. (Previously Presented) A capacitor comprising:

a conductive plug;

a first single electrode directly contacting the conductive plug, the single electrode having a compound that includes a first substance and a second substance, wherein the first single electrode also includes a trace amount of the first substance, wherein the compound in an as-deposited state includes a substantial amount of the second substance so as to inhibit undesired diffusion at a high temperature, wherein the compound includes RuO_x, wherein the x is indicative of a desired number of atoms;

a single dielectric formed directly on the first single electrode, the single dielectric including ditantalum pentaoxide; and

a second electrode formed directly on the single dielectric, wherein the second electrode includes a conductive portion formed below a surface of the first single electrode.

22. (Previously Presented) A capacitor comprising:

a conductive plug;

a first single electrode directly contacting the conductive plug, the first single electrode having a compound that includes a first substance and a second substance, wherein the first

single electrode also includes a trace amount of the first substance, wherein the compound includes RuO_x, wherein the x is indicative of a desired number of atoms;

a single dielectric formed directly on the first single electrode, the single dielectric including ditantalum pentaoxide, wherein the morphology of the compound remains stable when the trace amount of the first substance is oxidized during crystallization of the single dielectric; and

a second electrode formed directly on the single dielectric, wherein the second electrode includes a first conductive portion and a second conductive portion uniformly formed with the first conductive portion, wherein one of the first and second conductive portions is surrounded by the first single electrode.

23. (Previously Presented) A capacitor comprising:

a conductive plug;

a first single electrode directly contacting the conductive plug, the first single electrode having a compound and a substance, wherein the compound includes RuO_x, wherein the x is indicative of a desired number of atoms;

a single dielectric formed directly on the first single electrode, the single dielectric including ditantalum pentaoxide, wherein a crystalline structure of the single dielectric describes a (001) lattice plane; and

a second electrode formed directly on the single dielectric, wherein the second electrode includes a conductive portion formed below a surface of the first single electrode.

24. (Previously Presented) A capacitor comprising:

a conductive plug;

a dielectric having a first compound that includes a first substance and a second substance, wherein the first compound includes ditantalum pentaoxide; and

a first single electrode directly contacting the conductive plug, the first single electrode having a second compound that includes a third substance and a fourth substance, wherein the first single electrode also includes a trace amount of the third substance, wherein the second compound in an as-deposited state includes a substantial amount of the fourth substance, wherein

the trace amount of the third substance is oxidized during the crystallization of the dielectric such that a diffusion of at least one of the first substance and the second substance is inhibited, wherein the crystalline structure of the dielectric describes substantially a (001) lattice plane, and wherein the second compound includes RuO_x, wherein the x is indicative of a desired number of atoms;

a single dielectric formed directly on the first single electrode, the single dielectric having a first compound that includes a first substance and a second substance, wherein the first compound includes ditantalum pentaoxide; and

a second electrode formed directly on the single dielectric, wherein the second electrode includes a first conductive portion and a second conductive portion uniformly formed with the first conductive portion, wherein one of the first and second conductive portions is surrounded by the first single electrode.

25-50. (Canceled)

51. (Previously Presented) A memory device comprising:

an array of memory cells, wherein the array includes at least one capacitor that includes:

a metallization layer;

a single conductive layer directly contacting the metallization layer, the single conductive layer having a second compound that includes a first substance and a second substance, wherein the single conductive layer also includes a trace amount of the first substance;

a single insulator layer formed directly on the single conductive layer, wherein the second compound in an as-deposited state includes a substantial amount of the second substance so as to inhibit undesired diffusion of at least one substance of the first compound from the single insulator layer; and

a second conductive layer formed directly on the single insulator layer, wherein the second conductive layer includes a conductive portion formed below a surface of the single conductive layer; and

an address decoder;

a row access circuitry;

a column access circuitry;

a controller; and

an input/output circuit.

52. (Previously Presented) An electronic system comprising:

a plurality of circuit modules includes a plurality of dies, wherein at least one die includes at least one array of memory cells, wherein the array comprises at least one capacitor that includes:

a metallization layer;

a single conductive layer directly contacting the metallization layer, the single conductive layer having a second compound that includes a first substance and a second substance, wherein the single conductive layer also includes a trace amount of the first substance;

a single insulator layer formed directly on the single conductive layer, wherein the second compound in an as-deposited state includes a substantial amount of the second substance so as to inhibit undesired diffusion of at least one substance of the first compound from the single insulator layer; and

a second conductive layer formed directly on the single insulator layer, wherein the second conductive layer includes a conductive portion formed below a surface of the single conductive layer; and

at least one transistor having a gate, drain, and source, wherein the drain is coupled to the single second conductive layer;

a plurality of leads coupled to the plurality of dies to provide unilateral or bilateral communication and control; and

a user interface.

53. (Previously Presented) A computer system comprising:

a processor;

a memory system that comprises a plurality of memory modules, wherein one of the plurality of memory modules comprises a plurality of memory devices, wherein at least one memory device comprises at least one array of memory cells, wherein the array comprises at least one capacitor that includes:

a metallization layer;

a single conductive layer directly contacting the metallization layer, the single conductive layer having a second compound that includes a first substance and a second substance, wherein the single conductive layer also includes a trace amount of the first substance, wherein the second compound in an as-deposited state includes a substantial amount of the second substance so as to inhibit undesired diffusion of at least one substance of the first compound from the insulator layer;

a single insulator layer formed directly on the single conductive layer; and

a second conductive layer formed directly on the single insulator layer, wherein the second conductive layer includes a conductive portion formed below a surface of the single conductive layer; and

at least one transistor having a gate, drain, and source, wherein the drain is coupled to the single second conductive layer;

a plurality of command links coupled to the plurality of memory devices to communicate at least one command signal;

a plurality of data links coupled to the plurality of memory devices to communicate data;

a memory controller;

at least one user interface device, wherein the at least one user interface device includes a monitor;

at least one output device, wherein the at least one output device includes a printer; and

at least one bulk storage device.

54. (Previously Presented) A capacitor structure comprising:

a capacitor plug;

a first single conductive layer directly contacting the capacitor plug, the first single conductive layer including RuO_x in a first material structure and ruthenium in a second material structure;

a single dielectric layer formed directly on the first single conductive layer, the single dielectric layer including ditantalum pentaoxide; and

a second conductive layer formed directly on the single dielectric layer.

55. (Previously Presented) The semiconductor structure of claim 54, wherein the second conductive layer includes a material selected from a group consisting of TiN, TiON, WN_x, TaN, Ta, Pt, Pt-Rh, Pt-RhO_x, Ru, RuO_x, Ir, IrO_x, Pt-Ru, Pt-RuO_x, Pt-Ir, Pt-IrO_x, $SrRuO_3$, Au, Pd, Al, Mo, Ag, and Poly-Si;

56. (Previously Presented) A capacitor structure comprising:

a capacitor plug;

a first single conductive layer directly contacting the capacitor plug; the first single conductive layer including RuO_x compound and ruthenium substance separated from the RuO_x compound, wherein the first single conductive layer has a u-shape;

a single dielectric layer formed directly on the first single conductive layer, the single dielectric layer including ditantalum pentaoxide; and

a second conductive layer formed directly on the single dielectric layer, wherein the second conductive layer includes a first conductive portion and a second conductive portion uniformly formed with the first conductive portion, wherein one of the first and second conductive portions is surrounded by the first single conductive layer.

57. (Previously Presented) The semiconductor structure of claim 56, wherein the second conductive layer includes a material selected from a group consisting of TiN, TiON, WN_x, TaN, Ta, Pt, Pt-Rh, Pt-RhO_x, Ru, RuO_x, Ir, IrO_x, Pt-Ru, Pt-RuO_x, Pt-Ir, Pt-IrO_x, $SrRuO_3$, Au, Pd, Al, Mo, Ag, and Poly-Si.

58. (Previously Presented) A capacitor structure comprising:

a capacitor plug;

a first conductive layer directly contacting the capacitor plug; the first conductive layer including RuO_x in a first material structure and ruthenium in a second material structure, wherein the first conductive layer has a u-shape;

a dielectric layer formed directly on the first conductive layer, the dielectric layer including ditantalum pentaoxide; and

a second conductive layer formed directly on the dielectric layer, the second conductive layer including a material selected from a group consisting of TiN, TiON, WN_x, TaN, Ta, Pt, Pt-Rh, Pt-RhO_x, Ru, RuO_x, Ir, IrO_x, Pt-Ru, Pt-RuO_x, Pt-Ir, Pt-IrO_x, $SrRuO_3$, Au, Pd, Al, Mo, Ag, and Poly-Si, wherein the second conductive layer includes a first conductive portion and a second conductive portion uniformly formed with the first conductive portion, wherein one of the first and second conductive portions is surrounded by the first conductive layer.

59. (Previously Presented) A capacitor structure comprising:

a source drain region;

a silicide region formed over the source drain region;

a single capacitor plug formed on the silicide region;

a first single conductive layer directly contacting the single capacitor plug, the first single conductive layer including RuO_x compound and ruthenium substance separated from the RuO_x compound;

a single dielectric layer formed directly on the first single conductive layer, the single dielectric layer including ditantalum pentaoxide; and

a second conductive layer formed directly on the single dielectric layer.

60. (Previously Presented) The semiconductor structure of claim 59, wherein the second conductive layer includes a material selected from a group consisting of TiN, TiON, WN_x, TaN, Ta, Pt, Pt-Rh, Pt-RhO_x, Ru, RuO_x, Ir, IrO_x, Pt-Ru, Pt-RuO_x, Pt-Ir, Pt-IrO_x, $SrRuO_3$, Au, Pd, Al, Mo, Ag, and Poly-Si.

61. (Previously Presented) A capacitor structure comprising:

a source drain region;

a silicide region formed over the source drain region;

a single capacitor plug formed on the silicide region;

a first single conductive layer directly contacting the single capacitor plug; the first single conductive layer including RuO_x in a first material structure and ruthenium in a second material structure, wherein the first single conductive layer has a u-shape;

a single dielectric layer formed directly on the first single conductive layer, the single dielectric layer including ditantalum pentaoxide; and

a second conductive layer formed directly on the single dielectric layer, wherein the second conductive layer includes a first conductive portion and a second conductive portion uniformly formed with the first conductive portion, wherein one of the first and second conductive portions is surrounded by the first single conductive layer.

62. (Previously Presented) The semiconductor structure of claim 61, wherein the second conductive layer includes a material selected from a group consisting of TiN, TiON, WN_x, TaN, Ta, Pt, Pt-Rh, Pt-RhO_x, Ru, RuO_x, Ir, IrO_x, Pt-Ru, Pt-RuO_x, Pt-Ir, Pt-IrO_x, $SrRuO_3$, Au, Pd, Al, Mo, Ag, and Poly-Si,

63. (Previously Presented) A capacitor structure comprising:

a source drain region;

a silicide region formed over the source drain region;

a single capacitor plug formed on the silicide region;

a first conductive layer directly contacting the capacitor plug; the first conductive layer including RuO_x in a first material structure and ruthenium in a second material structure, wherein the first conductive layer has a u-shape;

a dielectric layer formed directly on the first conductive layer, the dielectric layer including ditantalum pentaoxide; and

a second conductive layer formed directly on the dielectric layer, the second conductive layer including a material selected from a group consisting of TiN, TiON, WN_x, TaN, Ta, Pt, Pt-

Rh, Pt-RhO_x, Ru, RuO_x, Ir, IrO_x, Pt-Ru, Pt-RuO_x, Pt-Ir, Pt-IrO_x, $SrRuO_3$, Au, Pd, Al, Mo, Ag, and Poly-Si, wherein the second conductive layer includes a conductive portion formed below a surface of the first conductive layer.